

CLAIMS

What is claimed is:

1. A structural frame supporting a movable saddle, comprising:

5 a motion guidance system including at least one guide column secured to the structural frame and a carriage movable along the guide column and secured to the structural frame, the motion guidance system including an anti-rotation bearing support affixed to the carriage and movably secured to the structural frame; and

10 a support device connected to the structural frame and a saddle for controlling the location of the saddle with respect to the structural frame.

2. The structural frame of claim 1 wherein:

the anti-rotation bearing support has a first end affixed to the saddle and an opposite end having an anti-rotation bearing; and
15 the anti-rotation bearing adapted to ride in an anti-rotation guide channel secured to the structural frame.

3. The structural frame of claim 1 wherein:

the motion guidance system includes a carriage secured to and
20 adapted to move along the length of the support tube, the carriage being interconnected to the saddle.

4. The structural frame of claim 1 wherein:

the support device for controlling the location of the saddle includes at least a first spring connected at one end to the saddle and at the other end to the structural frame.

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5. The structural frame of claim 3 wherein:

the at least first spring is connected at one end to the carriage and at the other end to the structural frame.

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6. The structural frame of claim 5 wherein:

at least two springs are each connected at one end to the carriage and at the other end to the structural frame.

7. The structural frame of claim 3 wherein:

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the support device for controlling the location of the saddle includes an hydraulic system interconnecting the carriage and the structural frame.

8. The structural frame of claim 7 wherein:

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the hydraulic system includes a hydraulic cylinder with a piston that moves in and out of the cylinder and includes an idler at one end;

a cable attached to one end of the piston and attached to the carriage at the other end;

wherein movement of the piston in the cylinder causes movement of the carriage and the saddle to which it is attached.

9. The structural frame of claim 3 wherein:

5 the carriage includes a first set of bearings mounted thereto and a second set of bearings mounted thereto, the first and second set of bearings being adapted to engage the guide column to ensure that the carriage 36 can move vertically up and down on the guide column.

10 10. The structural frame of claim 9 wherein:

the first and second set of bearings are at spaced locations from each other.

11. A transport cart including a structural frame supporting a movable
15 saddle, comprising:

a motion guidance system including at least one guide column secured to the structural frame and a carriage movable along the guide column and secured to the structural frame, the motion guidance system including an anti-rotation bearing support affixed to the carriage and movably secured to
20 the structural frame;

a wheel system attached to the structural frame for moving the transport cart; and

a support device connected to the structural frame and the saddle for controlling the location of the saddle with respect to the structural frame.

12. The transport cart of claim 11 wherein:

5 the anti-rotation bearing support has a first end affixed to the saddle and an opposite end having an anti-rotation bearing; and

the anti-rotation bearing adapted to ride in an anti-rotation guide channel secured to the structural frame.

10 13. The transport cart of claim 11 wherein:

the motion guidance system includes a carriage secured to and adapted to move along the length of the support tube, the carriage being interconnected to the saddle.

15 14. The transport cart of claim 1 wherein:

the support device for controlling the location of the saddle includes at least a first spring connected at one end to the saddle and at the other end to the structural frame.

20 15. The transport cart of claim 13 wherein:

the at least first spring is connected at one end to the carriage and at the other end to the structural frame.

16. The transport cart of claim 15 wherein:
at least two springs are each connected at one end to the carriage and
at the other end to the structural frame.

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17. The transport cart of claim 13 wherein:
the support device for controlling the location of the saddle includes
an hydraulic system interconnecting the carriage and the structural frame.

10 18. The transport cart of claim 17 wherein:
the hydraulic system includes a hydraulic cylinder with a piston that
moves in and out of the cylinder and includes an idler at one end;
a cable attached to one end of the piston and attached to the carriage
at the other end;
15 wherein movement of the piston in the cylinder causes movement of
the carriage and the saddle to which it is attached.

19. The transport cart of claim 13 wherein:
the carriage includes a first set of bearings mounted thereto and a
20 second set of bearings mounted thereto, the first and second set of bearings
being adapted to engage the guide column to ensure that the carriage 36
can move vertically up and down on the guide column.

20. The transport cart of claim 19 wherein:

the first and second set of bearings are at spaced locations from each other.